

OPERATIONS COMMAND



photo by Matt Milam

"I am very proud and humble to lead an elite group of some 3,400 professional men and women (approximately 100 are non-classified personnel) in the Emergency Operations Command. This command consists of Fire Suppression, Emergency Medical Services and Fleet Management. These dedicated individuals deliver premiere emergency services to the citizens of Houston, around-the-clock, all year long. As the fire and medical personnel work to save lives and property, our fleet team maintains a commitment to their safety and protection by meeting their transportation needs.

Altogether, we are committed to providing our external customers with the very best fire protection and the highest quality of prehospital care. The Emergency Operations Command continuously seeks opportunities to serve as we adamantly maintain our commitment to having our members return to their families at the end of each tour of duty."

Assistant Chief
Hector Trevino

Fire & EMS
Operations

Staffing
Office

EMS
Administration

Medical
Direction &
Quality
Assurance

Operations
Administration

Fleet
Management

Emergency Operations Command

As the Houston Fire Department moves into 2006, many changes are taking place. The amount and quality of training required for Suppression members is at an all-time high. The threats of weapons of mass destruction and natural disasters that have affected day-to-day operations have tested the metal of this division. Firefighter safety remains the number one priority for Emergency Operations.

Emergency Operations involves an array of responsibilities. Some of are noted below:

- The mitigation of fire suppression activities
- The role of first responder at EMS incidents has expanded
- The role of first responder at Haz-Mat and Rescue incidents has been expanded
- Step I and Step II grievance hearings are held by HFD personnel and HFD is represented at Step III and Arbitration hearings
- Liaison representation for HFD to Building Services
- Design and construction of new fire stations
- Public Information Officers for emergency incidents
- Personnel Assignment Office
- Support services for injured firefighters and their families
- Providing documents and information for Accreditation and the Strategic Plan
- Procurement for certain items for Suppression

The previous staffing shortage has been eased through aggressive hiring techniques. Implementing minimum staffing requirements on all engines and ladders has played a major role in the safety of our fire fighters. The Houston Fire Department is mandated by contract to maintain a minimum of four firefighters on all engines and ladders.

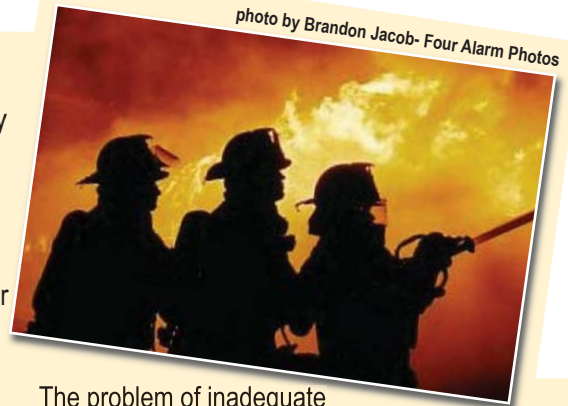


photo by Brandon Jacob- Four Alarm Photos

The problem of inadequate numbers of firefighter paramedics is being addressed through the recruitment of state certified paramedics and increasing paramedic assignment compensation. HFD continues to utilize paramedic squads and will continue to convert medic units into Basic Life Support as well as adding paramedic squads. These measures are tied to available funding. The recent addition of Fire Stations 83 and 86 added two Basic Life Support units and two paramedic squads.

Within the past two years, Fire Stations 27 and 33 have been replaced with new facilities. Construction on Fire Stations 83 and 86 have been completed and are now operational. These stations have one engine, one Basic Life Support unit and one Squad unit assigned. A Squad and a Basic Life Support unit were added to Fire Station 27. The designs for Fire Stations 8 and 105 are scheduled to be completed in the first quarter of 2006. Replacement Fire Station 94 is under construction and will be completed in June 2006. The renovation of Fire Station 21 has been completed. The renovation of Fire Station 75 has begun and the renovation of Fire Station 9 will begin in May 2006. Minor renovations of various stations have been completed.

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A driver qualification program has been implemented and an electronic database is available on the HFD LAN. Command Officer Development classes have begun for all chief officers and senior captains. Officer Development classes will begin in early 2006 for newly promoted captains. Firefighters were required to take the NIMS 700 class and exam online in 2005. HFD is about 85% compliant in this area. RIT classes have been completed as well as WMD training. Training on air bags, vehicle stabilization struts and TNT extrication tools have been completed and tools placed on ladder trucks.

Thermal imaging cameras were purchased through a grant and placed on all engine companies. Safety striping has been added to all ground ladders. On-duty firefighters performed the application of ladder striping.

HFD applied for and received CDBG funding for 9 engines, 11 squads and 16 transport units. All vehicles have been placed in service.

HFD is participating in the National Near Miss program and had a member serve as a Near Miss representative at the IAFC Convention in 2005.

Firefighters received training on six new ladder trucks that were put into service upon completion of the training.

Emergency Operations continues to provide the best fire and EMS services available. This is accomplished through dedicated firefighters and a proactive administration. Firefighter safety remains at the forefront of all HFD operations.



Personnel Assignment

The Personnel Assignment office accepts and processes transfers for over 3500 members, assists with maintaining an accurate work and shift roster on a daily basis, ensuring compliance with departmental guidelines, monitoring the overtime program and assignment pay for paramedics, bilingual members, District and Field Training Officers and Hazardous Materials pay.

HFD Staffing Office

The HFD Staffing Office ensures the proper staffing of personnel to maintain minimum staffing levels on all fire department equipment. The office is responsible for contacting and assigning overtime members, tracking absences for budgetary purposes, formulating a variety of staffing reports and contacting districts to disseminate staffing information.

HFD Special Events

The Special Events unit works exclusively with local industries and organizations to coordinate major events to ensure safety compliance and to determine the minimum level of staffing required for managing public events for thousands of Houston area citizens.

The Special Events team includes the following specialized groups:

Medical Bike Team

A team consists of one EMT and one Paramedic, with ALS capabilities. Bicycles are more maneuverable in large gatherings and provide faster emergency responses where needed. Current and new members endure rigorous training and must participate in continuing education classes to remain with the bike team.

Honor Guard

The Honor Guard represents the City of Houston and the Houston Fire Department in a variety of ways. They ensure HFD participation at ceremonies and functions such as member funerals, memorial and graduation ceremonies and a variety of other events.

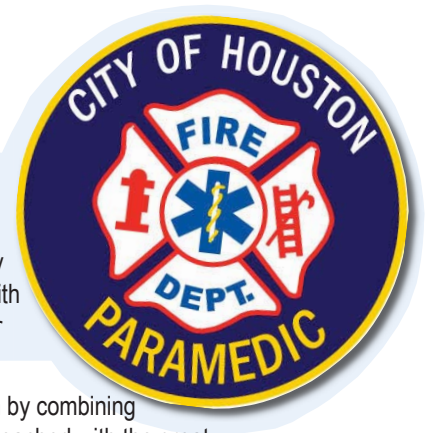


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EMERGENCY MEDICAL SERVICES (EMS)

Since 1838, the Houston Fire Department has provided high quality fire service to its citizens. In 1971 the Houston Fire Department began providing the citizens of Houston with quality emergency medical care. Quality emergency medical care is not defined solely in terms of life saving interventions for critically ill or injured patients. High quality emergency medical care is defined by the decisions made on each and every patient encounter. The challenge EMS providers face is to make important, sometimes critical decisions with a limited amount of information. Other times Houston Fire Department personnel are called upon solely for their opinion as EMS professionals.



The highly educated EMS personnel of the Houston Fire Department pursue excellence in their profession by combining the benefits of medical science with the art of compassionate care. In all cases, potential patients are approached with the greatest professionalism and concern for their well being.

In the pages that follow, you will find summaries of facts concerning the Emergency Medical Service system of the Houston Fire Department. We anticipate that after review of the information, a better understanding of the significance and capabilities of the Emergency Medical Service system will be acquired.

Overview and Demographics

The City of Houston is a 600+ square mile area spread out over a 1000 square mile region in Southeast Texas. It has a night-time population of nearly two million people and over three million daytime population. One out of every 10 citizens utilizes EMS. Each year there are over 200,000 EMS incidents involving over 225,000 patients or potential patients. On the average, EMS responds to a citizen every 3 minutes. Currently, the department has 122 EMT-staffed First Responder engine companies and ladder trucks, 54 EMT-staffed BLS ambulances, 21 paramedic-staffed ALS ambulances, and 19 paramedic-staffed squads.

Personnel Staffing

All EMS personnel are also firefighters experienced in emergency rescue, extrication, and the suppression of hazardous materials and conditions. All firefighters are specifically trained and annually re-trained in basic first-responder (FR) activities. Since 1981, new cadets in the fire department are also EMT-trained.

Paramedics are initially trained with 1200 hours of standard curriculum, compatible with Department of Transportation (DOT) stipulations (the State of Texas requires 650 hours). Paramedics then qualify for the National Registry Paramedic exam. However, prior to coming to full status as a paramedic, the new candidate undergoes another minimum period of four months of in-field apprenticeship and evaluation under veteran preceptors, EMS physicians and HFD supervisors.

On-line medical direction is provided by the EMS Physician Director and Assistant Medical Directors from a single base station with multiple telemetry voice/electrocardiograph transmission capabilities. The county-wide availability and status of all area hospital emergency centers are also continually monitored at this location and regularly updated on a website. The paramedics at the base station continuously monitor the website so that EMS transport units can be appropriately re-routed as necessary.

Ambulance Placement

To properly serve the city, ambulance units must be located in a manner that best services all the residents of the city. The location of ambulances is based on the concept of fractal, rather than average response times. More recently the Houston Fire Department has embarked on a redesign of the EMS resource deployment scheme. The department is transitioning from a tiered program using First Responder engine/ladder companies, BLS ambulances and ALS ambulances to a tiered dispatch driven First Responder engine/ladder companies, all BLS ambulances and Paramedic Squads. Currently, the department has 122 EMT-staffed First Responder engine companies and ladder trucks, 54 EMT-staffed BLS ambulances, 21 paramedic-staffed ALS



ambulances, and 19 paramedic-staffed squads. The paramedic squads are centrally located and along major thoroughfare corridors following the city's highest call volume areas. The tiered dispatch system sends BLS resources to approximately 40% of all initial dispatches and paramedic resources to 60% of all dispatches. Data shows the BLS first responder "cancels" the ALS resources in approximately 70% of the paramedic dispatches, returning the paramedic units to service making them available for the next potential call. Upon initiation of this program paramedic response times decreased 2.7 minutes in the neighborhoods with the Squads, and over one minute across the remainder of the city. Reports of severe injury are responded to by the closest ambulance (ALS or BLS), and a squad if necessary.

Protocol dictates that critically injured patients are to be immobilized and transported as quickly as possible. As a result some critically injured patients arrive before being intubated or having intravenous access established, but this is offset by the prehospital time being reduced by over 10 minutes.

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The Demand for Emergency Medical Service

The public's demand for emergency medical services has steadily increased over the last nine years from 166,045 EMS incidents in FY97 to 227,122 in FY05. This demand can be defined by the following workload measures.

	FY97	FY98	FY99	FY00	FY01	FY02	FY03**	FY04	FY05
EMS Incidents	166,045	175,485	188,142	203,146	214,341	215,532	213,427	213,574	227,122
EMS Transports	103,670	115,108	112,205	121,479	131,215	132,668	N/A*	N/A*	N/A*

** - Questionable/lost data in 2003 due to changeover to new CAD; new EMS laptops, etc.

* N/A - Reliable patient record data not available at this time in EMS database; awaiting completion of ACS-PRC "bridge".

EMS Performance Measures

All aspects of EMS operations are continually re-evaluated and scrutinized as part and parcel of their usual function. For example, dispatch functions are routinely reviewed, beginning with very detailed statistical analyses of all dispatches including: 1) types of calls received; 2) the various levels of response; and 3) the specific location of all incidents. In turn, these data points are correlated with various types of patient care information such as case severity, hospital destination, and procedures performed. Access to EMS is facilitated by an enhanced 9-1-1 system, which relays medical calls (within 10-15 seconds) from a central "neutral" public safety answering point. All components of system response time such as time for the 9-1-1 relay, dispatch processing time, notification and departure time, and actual response time to the scene (as well as patient contact time), are carefully reviewed and well-analyzed, particularly in all cases of major trauma and cardiac arrest. Houston Emergency Medical Services have also incorporated a new program that allows the administration of thrombolytics by paramedics to patients having life-threatening heart attacks. In-hospital follow-up and discharge (outcome) information are accomplished citywide by close cooperation with the medical and administrative staff of community hospitals. Recently, return of spontaneous circulation (ROSC) for VF patients has been around 65%, but has been as high as 72% with a survival to hospital discharge rate of 20 – 25%. The quality improvement efforts have rigorously evaluated its own efforts and have been demonstrated to make a statistically significant improvement in outcomes (Prehosp Emerg Care Jan-Mar 2002). Patient satisfaction measures bear out the positive impact of this EMS system's multifaceted pursuit of excellence (Acad Emer Med, Jan 2004).



Increased Time To 1st Responder Arrival	ROSC*/#	%	Admitted to Hospital/#	%	Discharged Alive From Hospital/#	%
<5 min.	143/283	50.5	100/283	35.3	28/283	9.9
>=5, <10 min.	359/873	41.1	260/873	29.8	63/873	7.2
>=10, <15min.	129/282	45.7	79/282	28.0	21/282	7.4

Cardiac Arrest Outcomes: Stratified by Incident Time-FR Arrival Time January-December 2005

* ROSC (Return of Spontaneous Circulation)

Although witnessed Ventricular Fibrillation (VF) cardiac arrest survival rate is often referred to as a quality indicator, EMS professionals also track and compile overall cardiac arrest survival rate.

Also undergoing continuous scrutiny is the impact of the advanced life-support system. Patients who suffer cardiac arrests are followed through their hospitalization and for up to one year after discharge. The successful strategies are analyzed and reviewed by international experts for publication (Resuscitation, October 2003). Houston's success with caring for the most critically ill patients has been showcased in a recent review article stressing the delivery of critical care medicine in the out-of-hospital environment (Prehosp Emerg Care, Jan-Mar 2002).

Inquiries and complaints are handled by joint reviews from both official HFD investigators as well as the Physician Director's staff. In recent years, this activity has amounted to approximately 10 complaints/inquiries per month of which only an average of two are medically related. The medical care problems generally involve constructive feedback from emergency department physicians or even the EMS personnel themselves. On the average, 20% are ruled as being valid problems. Overall, most complaints involve a perception of "rudeness" and most are made by bystanders. Overall, the annual incidence is about 65 complaints/inquiries per 100,000 patient contacts (Acad Emerg Med June 1995). Over the last four years (2001-2005) Houston Emergency Medical Services has consistently maintained a 96% patient care satisfaction rate.

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Administration

By ordinance, the City of Houston Emergency Medical Services (EMS) Program is solely responsible for all emergency medical calls received from within the city limits. Scheduled interfacility transfers are handled by private ambulance services. Unscheduled emergent emergency department-to-emergency department (ED to ED) transfers are frequently referred to HFD.

The City of Houston EMS Medical Director is responsible for all medical aspects of prehospital patient care. The Medical Director has the authority to approve the level of prehospital care, establish and monitor compliance with field performance guidelines and establish and monitor training standards. Physicians representing the various emergency centers in the Houston area form the EMS committee of the Harris County Medical Society and advise and assist the EMS System Physician Director in medical quality control and policy development. A strong emphasis is placed on full-time, close physician supervision, including daily on-scene evaluation and participation by the Physician Director and his staff.

In addition, six Sector EMS Captains, two Senior Captains and a District Chief head each of the four 24-hour shifts of EMS operations. These EMS supervisors are paramedics as well as fire department officers. The supervisors report through a dual chain-of-command to the Assistant Fire Chief for EMS and the Physician Director. They provide education, quality improvement and trouble-shooting supervision over the eight to nine BLS and seven or so ALS units in each sector. These HFD supervisors must also respond to all cardiac arrests and other major incidents in their jurisdiction and they provide excellent on-scene quality assurance in such circumstances. These paramedic supervisors offer minute-to-minute system monitoring and are the key link to the quality of patient care in this extremely large system. They are often accompanied by EMS Fellows, Senior Emergency Medicine Residents or Surgical Residents.

photo by Matt Milam



DAVID E. PERSSE, M.D.

Physician Director
Emergency Medical Services
City of Houston
Public Health Authority
Department of Health & Human Services
City of Houston



Dr. Persse's career in medicine started with ten years of experience as a field paramedic and paramedic instructor in upstate New York and New Jersey. After receiving his pre-med training at Columbia University in New York, he then attended Georgetown University School of Medicine. Graduating with honors in emergency medicine from Georgetown, Dr. Persse then completed residency training in emergency medicine at Harbor-UCLA Medical Center in Torrance, California, one of southern California's busiest trauma centers and paramedic base stations. During residency, he was already involved in several key resuscitation and prehospital care research projects, including laboratory and clinical investigations of pharmacological interventions used in advanced cardiac life support (ACLS).

After residency, Dr. Persse completed a resuscitation research fellowship at the Ohio State University. He was then awarded a grant from the Society for Academic Emergency Medicine and completed fellowship training in emergency medical services and resuscitation at the Baylor College of Medicine and the City of Houston Emergency Medical Services program.

Following his EMS fellowship Dr. Persse became the Assistant Medical Director for the Emergency Medical Services system of Houston, overseeing field operations and clinical research trials. He then moved to California to become the Medical Director of the Los Angeles County Paramedic Training Institute, and the Assistant Medical Director of the Los Angeles County EMS Agency. In 1996 Dr. Persse returned to Houston to assume the role of the Director of Emergency Medical Services for the City of Houston. In May of 2004 he was appointed by City Council as Houston's Public Health Authority.

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Superstation #8
Louisiana @ St. Joseph Parkway
District I / Carol Alvarado
Opening 2008



#27
Location: 6515 Lyons Ave.
Size: New 2 bay station
District H / Adrian Garcia



#33
Location: 7117 Fannin
Size: New 4 bay station
District: D / Ada Edwards



#83
Location: 3350 Breezewood
Size: New 3 bay station
District: G / Pam Holm

Facilities

Five new fire stations have been constructed and four more are in design or planning stages. Renovations to several existing Stations and the Val Jahnke Training Facility have been completed or are in progress. A master plan for the VJTF has been developed and is expected to assist with the creation of this state-of-the-art training facility.

New Stations #27, 33, and 83 are in service. New Stations #86 and 94 will be ready for occupancy in the spring of 2006. New Stations #24 and 84 have been designed and are awaiting construction funding. New Stations #8 (The Superstation) and 105 are in the design phase.



#86
Location: 14300 Briar Forest
Size: New 3 bay station
District: G / Pam Holm



#94
Location: 235 El Dorado Blvd.
Size: New 3 bay station
District: E / Addie Wiseman



#105
Location: 14010 West Lake Houston Parkway
Size: New 2 bay station
(Expandable to 4 bay)
District: E / Addie Wiseman